

REMARKS

Receipt of the Office Action of March 8, 2005 is gratefully acknowledged.

Claims 1 - 10 and 12 were reexamined and rejected as unpatentable under 35 USC 103(a) over Locke in view of Bellee et al.

This rejection is respectfully traversed.

The present invention proceeds from the physical fact that the resonant frequency of the cut-outs, that is to say the frequency at which a measuring signal is essentially radiated without being damped, is a function of the respective dimensions of the cut - outs. In the case of a rectangular slot, this means that the resonant frequency is a function of the length and width of the slot.

To clarify this point of distinction, claim 1 has been amended to recite the "conductive layer" in which the cut - outs are formed and the fact that their "lengths" "widths" and "shapes" are different

In Locke, the feed and the receiving of microwaves take place separately from the process area outside of the tank via a planar array antenna, which is attached at the tank on a pressure window permeable for microwaves. The planar array antenna consists of a dielectric disk with imprinted radiating elements, which allow for transmitting and receiving of frequency-modulated signals in a certain range as a result of the equidistant microwave paths of the radiating elements. A further reason for the possibility of wide-band radiation is that the embodiment of a planar array antenna in Locke does not have a resonator disk with cut - outs in a conductive layer. Such a resonator disk with cut - outs extinguishes and/or prevents all frequency portions of the measuring signals that are outside the resonant frequency of the cut - outs. Another reason for the use of a resonator disk in front of the radiating elements is that only the desired basic mode of the transmitting signal can be stimulated. On this account, a multi-mode planar antenna without a resonator structure is not commensurate with a monomode planar antenna with a resonator structure.

In Bellee et al a layer-wise structure of a planar array antenna is principally used for communication application. Moreover, Bellee et al solves a problem different from

that solved by the present invention. In Bellee et al the planar array antenna consists of two disks (10,11) with parallel radiating elements (20,30), which disks and elements are twisted relative to each other by about 90 degrees. Thus, cross-polarized elements are developed, which permit a re-use of the same transmitting frequency without mutual interference of the different linear polarized signals, and consequently, the data communication range are doubled. From Figs 1, 2, 3 and 4 it is obvious that the slots (40,45) have the same dimension, or length and width, with different direction and orientation of the rectangular slots for a vertical and horizontal linear polarized signal, as seen in Fig. 4, and discussed in col. 2, line 55 to col. 3, line 5.

It is also seen that the slots 40 and 45 have different depths. The different depths produce a phase delay between these polarized signals, which can be compensated for by an additional line length of the feed structure (Fig. 2, col. 3, lines 40 - 45).

It is readily apparent that the present invention as claimed and the Locke and Bellee et al patents are quite different. They do not disclose a planar antenna with different cut - outs or recesses in the resonator structure that produces a monomode, multifrequency measuring signal. Locke and Bellee et al do not disclose cut - outs of different length, width and/or shape creating a monomode , multifrequency signal. They would need to at least teach such a cut - out configuration to hope to render claims 1 - 10 and 12 unpatentable. Since they do not, it is respectfully submitted that claims 1 - 10 and 12 patentably distinguish over the applied references

Respectfully submitted,

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